Self Reporting GPS Tracked Bench Mark for Sensor Vertical Position

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Description:
At some point, with the advancements in GPS technology – accuracy, power, and unit size - the concept of a self-reporting bench mark could provide extreme cost savings and other efficiencies related to vertical stability. The bench mark could be stand-alone or incorporated into a sensor. One would think with proper timing, acquired knowledge of its surroundings (proximity to buildings, bridges, towers, obstructions, etc.), and lots of time (relatively), it would be possible to approach a GPS manual leveling survey that used accepted receivers and procedures. Shifts following earthquakes, hurricanes could be tracked without dispatching a field crew. This information could support decisions to shut-off or continue dissemination of critical data at the site of a disaster (e.g., 2011 Pacific Tsunami that hit Japan and affected much of the Pacific including West Coast U.S.). One of the big benefits would be the direct incorporation of this bench mark into sensors that monitor various vertical movements such as water level. To produce meaningful data, these sensors have to be leveled-in and routinely checked. While some of the accuracy levels required might take hours or maybe even days to accumulate, it would eliminate or greatly reduce the expense of deploying a field crew.